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The identity of *Restio trisepalus* Nees, the new combination *Leptocarpus trisepalus* and lectotypifications in Australian Restionaceae

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Abstract

Restio trisepalus Nees is identified as an earlier name for the recently published Western Australian species *Leptocarpus elegans* B.G.Briggs. The new combination, *Leptocarpus trisepalus* (Nees) B.G.Briggs, is provided. Lectotypes are designated for *Leptocarpus erianthus* Benth., *Leptocarpus thamnorchortoides* F.Muell., *Lepyrodia paniculata* F.Muell. and *Lepyrodia muirii* F.Muell.; only the last of these being a currently accepted name.

Restio trisepalus Nees

When Nees von Esenbeck described the Restionaceae collections of Ludwig Preiss in Western Australia in Lehmann's (1844–1848) *Plantae Preissianae*, he made very significant contributions to knowledge of Australia's flora, naming many new species. Preiss's collection 1705, 'In Australia meridiionali-occidentali', consisted of both male and female plants, but Nees (1846) noted that they were not conspecific. The female was identified as *Leptocarpus canus* Nees, which had been described earlier (Nees 1841) and is typified by a Drummond collection (Swan River, *Drummond s.n.*, anno 1839 (B_10_02788859, CGE06145). Both the B and CGE sheets of the type were labelled by Nees as '*Leptocarpus canus* L. & N', referring presumably to Lindley and Nees, although *L. canus* was published by Nees alone. Other publications (for example, APNI 2015), have interpreted 'L. et N.' as 'Lehmann & Nees'. However 'L.' is only included in the authorship of taxa published in a paper communicated by Lindley and (or) described from specimens in his herbarium. 'L.' is not included in the authorship of the many other species described by Nees in Lehmann's *Plantae Preissianae*.

The male plants of Preiss 1705 were described as *Restio trisepalus* Nees. In his *Flora Australiensis*, Bentham (1878) placed *R. trisepalus* as a probable synonym of *Leptocarpus aristatus* R.Br., which is now recognised as *Chaetanthus aristatus* (R.Br.) B.G.Briggs & L.A.S.Johnson. Bentham observed that '*Restio trisepalus*, Nees in Pl. Preiss. ii. 58, described from a male specimen of Preiss's, which I have not seen, belongs most probably to this species'. This placement has continued to the present, as in the *World Checklist of Selected Plant Families*: Restionaceae (Govaerts et al. 2005) and *The Plant List* version 1.1 (Kew 2013).

When I examined the type of *Restio trisepalus* in Lund in 1998, I was not able to refer it to any recognised taxon. I now consider that it is conspecific with a recently named species, *Leptocarpus elegans* B.G.Briggs (2014). This is made clear by features shown in the photograph of the type (LD1354577) on the Lund Herbarium web site (<https://plants.jstor.org/partner/LD>) and in more detail in Fig. 1. Male specimens of *L. elegans* differ from those of *Chaetanthus aristatus* in having stout and often laterally compressed culms 1–3(–4) mm wide; culm sheaths few (2–4); spikelets after anthesis ovoid with broadly spreading glumes; glumes aristate with a wide

pale hyaline margin. By contrast, males of *C. aristatus* have slender terete culms 0.4–1 mm diam.; culm sheaths more numerous (8–12); spikelets narrow-ovate; glumes acute, more evenly brown, and with an inconspicuous narrow membranous margin. The type specimen resembles *L. elegans* in all these features. It may be a whole plant or part of a larger tussock, but appears probably to be the whole of a small plant with three culms. Plants with few culms are common in *L. elegans*, which regenerates only from seed (Meney et al. 1999), although some plants grow into large many-stemmed tussocks. The species occurrence is in the Swan Coastal Plain, Jarrah Forest and Warren regions of southern Western Australia from Bunbury to east of Augusta, in seasonally moist sites with heath and shrubs on peaty sand, clay or laterite.

Restio is now circumscribed to include only African genera (Briggs & Johnson 1999, Briggs & Linder 2009) and the features of *R. trisepalus* are consistent with the Australian genus *Leptocarpus*. The three subgenera of *Leptocarpus* (Briggs 2014) are defined as well-supported clades in DNA analyses and their morphological distinctions are features of the female plants. Both sequence data (Briggs et al. 2014, where it is included in the analyses as '*Leptocarpus* sp. A') and female morphology place the species in subgenus *Leptocarpus*.



Fig. 1. **a**, an inflorescence of the type specimen of *Restio trisepalus* (LD1354577). **b**, part of a male inflorescence of *Leptocarpus elegans* (1 km E of Ruabon, Western Australia, B.G. Briggs 6743, 10 Oct 1976, NSW410901). **c**, part of a male inflorescence of *Chaetanthus aristatus* (Dunsborough, Western Australia, B.G. Briggs 6465, 2 Oct 1976 NSW411119). Scale bars = 5 mm. Photos: a, Patrik Frödén; b, c, Jamie Plaza.

A new combination: *Leptocarpus trisepalus*

Accepting that *Restio trisepalus* is an earlier name for the species known as *Leptocarpus elegans*, a new combination is necessary and is provided.

Leptocarpus trisepalus (Nees) B.G.Briggs, **comb. nov.**

Basionym: *Restio trisepalus* Nees in Lehmann, *Plantae Preissianae* vol. 2: 58 (1846).

Type: In Australia meridionali-occidentali, *L. Preiss 1705* p.p. ♂ (LD1354577), excluding the female material of *Preiss 1705* which is *Leptocarpus canus* Nees.

Synonym: *Leptocarpus elegans* B.G.Briggs, *Telopea* 16: 24 (2014).

Type: Western Australia: Dennis Road 0.5 km N of Governor Broome Road, ENE of Augusta, B.G. Briggs 9821, 19 Nov 2007 (holo NSW756791; iso PERTH).

Lectotypifications of Australian Restionaceae

The following lectotypifications are seen as necessary towards preparing an account of Restionaceae suitable for inclusion in the *Flora of Australia*.

Leptocarpus erianthus Benth., *Flora Australiensis* 7: 235 (1878). [Currently accepted name = *Chaetanthus aristatus* (R.Br.) B.G.Briggs & L.A.S.Johnson]

Type citation: ‘*Drummond*, n. 81 and 943; Albany and Stirling Range, *F. Mueller*, *Maxwell*, *Muir*; Gordon and Vasse Rivers, *Oldfield*’.

Lectotype here designated: W. [Western] Australia, Vasse R., *Oldfield* ♀ (K873668; islecto MEL0014372, MEL0014373).

All of the syntypes are considered to be conspecific. The lectotype is chosen since white hairs are prominent on the old flowering heads, a distinguishing feature noted by Benthams; the K and MEL specimens are very similar and all have been labelled in pencil ‘*Lepidobolus*?’ or ‘reminds of *Lepidobolus*’. The lectotype was annotated as *Leptocarpus erianthus* by Benthams.

Residual syntypes: Vasse River, *Oldf* [*Oldfield*] 1036, ♂ MEL0014365; near the Vasse River, *Oldf* [*Oldfield*] 720, ♀ K873667; *Drummond* 81, ♂ K873669; *Drummond* 943, ♂ ♀ MEL0014366, GH, K873670, ♂ P748698–9; Stirlings [= Stirling] Range, *F. Mueller s.n.*, Oct. [18]67 ♂ ♀ MEL0014368; between Albany and Stirlings Range, *Maxwell s.n.*, ♂ MEL0014375, ♀ MEL0014369, ♀ MEL0014374, ♂ ♀ MEL0015093; Stirling Range, *Maxwell s.n.*, ♂ ♀ K873671; KG [King George] Sound, *Muir s.n.*, ♂ MEL0014371, ♂ MEL0014377, ♀ MEL0014376; Gordon River, *Oldfield* 732, ♂ ♀ MEL0014370, *s.n.* ♀ K873672.

Leptocarpus thamnochortoides F.Muell., *Fragmenta phytographiae Australiae* 8: 96 (1873). [Currently accepted name = *Leptocarpus laxus* (R.Br.) B.G.Briggs]

Type citation: ‘In paludibus stagnisque Australiae occidentalis; e.g. Porongerup et King George’s Sound; F. M. [Mueller]. Blackwood-River et Wilson’s Inlet; Oldf. [Oldfield.] 107 et 391 Drum. [Drummond]’.

Lectotype here designated: WA [Western Australia], *J Dr* [*Drummond*] 107, ♀ (MEL0000002).

Residual syntypes: *L. laxus*: Wilson’s Inlet, *Oldf* [*Oldfield*] 739, ♂ ♀ MEL0000009, 738, ♂ ♀ MEL0000010, MEL0000013; KGS [King George’s Sound], *Oldfield* 733, ♂ ♀ MEL0000011. *L. tenax* (Labill.) R.Br.: Between Porongerup [=Porongorup] & Willyung, *Mueller s.n.*, Oct 1867 ♀ MEL0000012, MEL0000015; Princess R[Royal] Harbour KGS [King George’s Sound], *Oldfield* 784, ♂ ♀ MEL0000006; KGS [King George’s Sound], *Oldfield s.n.*, ♂ MEL0000005; Wilson’s Inlet, *Oldf* [*Oldfield*] 745 MEL0000008. *L. trisepalus*: WA, *Drummond* 391, ♀ LD, MEL0000001.

The name *Restio microstachys* R.Br. (Brown 1810, p. 246), which is now regarded as a synonym of *Leptocarpus scariosus* R.Br., was applied by Nees to Preiss specimens No. 1709 and 1726 (Nees 1846 p. 59). Mueller (1873 p. 96) recognised that Nees had applied *R. microstachys* to specimens that did not match Brown’s concept and published *Leptocarpus thamnochortoides* as a new taxon to include collections similar to those that Nees had referred to as *R. microstachys*. Mueller cited collections of his own and those of Oldfield and Drummond, but not the Preiss specimens that Nees had cited.

Johnson & Evans (1966 p. 25) designated as lectotype of *L. thamnochortoides* ‘a sheet of Preiss No. 1709 (in Melbourne)’, which would refer to MEL0000003 or MEL0000004. However, Nees did not publish *Restio microstachys* as a new name; he merely used Brown’s name when identifying and describing specimens, so the specimens he cited are not types. Since Mueller’s name is not based on Nees’s publication (it is a sp. nov. rather than a nom. nov.), it should be typified by collections cited by Mueller. As indicated above, these appear to include specimens of three species; these can be difficult to distinguish, especially when bases are lacking. The attempt by Johnson & Evans to lectotypify *L. thamnochortoides* would have placed it as a synonym of *Leptocarpus laxus*. With the new lectotype designated above, it retains that identity.

Lepyrodia muirii F.Muell., *Fragmenta phytographiae Australiae* 8: 78 (1873)

Type citation: ‘Ad sinum Regis Georgii; F.M. [Mueller]. Ad lacum Muirii; J.R.Muir. Prope sinum Geograph-Bay; A. & E. Pries.’

Lectotype here designated: [Western Australia] KGS [King Georges Sound], *F v M* [*Mueller*] *s.n.*, ♀ (MEL0014672; islecto: B_10_278841, MEL0014674 [also labelled with Diels’ herbarium number 7348]).

Residual syntypes: Busselton [region of Geographe Bay], *A. & E. Pries s.n.*, ♂ MEL0014669; King Georges Sound and Lake Muir, Herb. *Mueller s.n.*, 1876, ♂ ♀ K873625 [1876 is apparently the date of receipt of the specimen at Kew, other K specimens sent by Mueller share this date]; probable syntype K.G. [King Georges] Sound, *Muir s.n.*, ♂ MEL0014670, MEL0014671 (correctly annotated by N.G. Kaunajee in 2006 ‘Mueller in *Fragm.* 8: 78 (1873) cited his own collection from KGS and J.R. Muir’s collection from Lake Muir, – not KGS as appears on this label.’).

The lectotype sheet has dissected flowers in a packet and some descriptive annotations. It is considered an appropriate choice among the specimens annotated by Mueller.

Lepyrodia paniculata F.Muell., *Fragmenta phytographiae Australiae*. 8: 73 (1873). [Currently accepted name = *Sporadanthus tasmanicus* (Hook.f.) B.G.Briggs & L.A.S.Johnson]

Type citation: 'In clivis saxosus prope Morro-Morro montium Grampians; F. M. [Mueller]. In vicinia sinus Southport; C. St. [Stuart]'

Lectotype here designated: prope Morro-Morro [=Morra Morra], montium Grampians; *F. v. Mueller s.n.*, Nov. [18]53 ♂ MEL0707417; islecto Grampians, *F. v. Mueller s.n.*, MEL0707418; near Morro Morro, MEL2295786; Morra Morra, Herb. *F. Mueller s.n.*, 1876 [1876 is apparently the date of receipt of the specimen at Kew] K873612.

Residual syntype: Southport, *C. Stuart s.n.*, ♂ ♀ K873611, ♂ MEL0707419, 0707420, 2295787–2295789.

The lectotype is chosen since it is annotated with Mueller's extensive descriptive notes.

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